



Gyroscopic Survey Report
for
KP Kaufman
1675 Broadway Suite 2800
Denver, CO 80202

Well Location	WELD, CO
Well Name	JAMES A DAMIANA
Rig Number	
Survey Date	8/19/2014
Latitude	40.1182100°N
Longitude	104.7994600°W
North Reference	True North
Grid Correction	None
Depth Reference	GL (0.00 ft)
Calculation Method	Minimum Curvature
Section (VS) Ref	0.00N (ft), 0.00E (ft), 312.83Azim (deg)
Definitive Survey	None
Operator(s)	C KIRBY, P HOLBROOK

Well Notes

Survey Report

Well Name:		JAMES A DAMIANA							
Survey:		JAMES A DAMIANA #2							
Survey Date:		8/19/2014							
MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Closure Distance ft	Closure Direction deg
0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid	0.00	0.00
86.56	0.08	43.48	86.56	0.00	0.04	0.04	0.09	0.06	43.48
111.64	0.10	57.32	111.64	-0.01	0.07	0.07	0.11	0.10	46.50
134.14	0.12	327.44	134.14	0.01	0.10	0.07	0.68	0.12	37.43
160.54	0.12	18.23	160.54	0.05	0.15	0.07	0.38	0.16	25.03
183.46	0.14	5.88	183.46	0.08	0.19	0.08	0.16	0.21	21.76
209.30	0.18	334.32	209.30	0.13	0.26	0.06	0.36	0.27	13.70
236.14	0.17	347.00	236.14	0.20	0.34	0.04	0.14	0.34	6.28
259.08	0.16	325.87	259.08	0.26	0.40	0.01	0.27	0.40	1.62
285.66	0.36	304.54	285.66	0.38	0.48	-0.08	0.83	0.48	350.56
307.88	0.41	300.99	307.88	0.53	0.56	-0.21	0.24	0.59	339.78
335.13	0.31	303.80	335.13	0.70	0.65	-0.35	0.37	0.74	331.63
361.37	0.39	280.29	361.37	0.84	0.70	-0.50	0.62	0.86	324.76
384.15	0.46	277.80	384.15	0.98	0.73	-0.66	0.29	0.99	317.74
411.16	0.42	275.04	411.15	1.15	0.75	-0.87	0.17	1.15	310.99
433.15	0.45	277.69	433.14	1.28	0.77	-1.03	0.19	1.29	306.79
460.33	0.45	276.10	460.32	1.46	0.80	-1.25	0.05	1.48	302.66
482.32	0.47	270.85	482.31	1.59	0.81	-1.42	0.21	1.64	299.64
508.60	0.38	267.35	508.59	1.73	0.81	-1.62	0.35	1.81	296.50
535.72	0.35	280.17	535.71	1.87	0.82	-1.79	0.32	1.97	294.53
561.99	0.48	273.31	561.98	2.02	0.84	-1.98	0.50	2.15	292.94
584.79	0.49	274.17	584.78	2.17	0.85	-2.17	0.08	2.33	291.38
611.06	0.44	272.80	611.05	2.34	0.86	-2.38	0.22	2.54	289.90
632.99	0.46	268.84	632.98	2.46	0.87	-2.56	0.17	2.70	288.71
659.33	0.56	256.14	659.32	2.61	0.83	-2.79	0.58	2.91	286.63
686.34	0.63	254.12	686.33	2.76	0.76	-3.06	0.25	3.15	283.96
709.09	0.63	250.59	709.08	2.88	0.68	-3.30	0.17	3.37	281.73
735.38	0.64	253.02	735.36	3.03	0.59	-3.58	0.11	3.62	279.42
758.01	0.66	263.54	757.99	3.17	0.54	-3.83	0.53	3.86	278.05
784.36	0.88	272.31	784.34	3.43	0.53	-4.18	0.97	4.21	277.26
811.32	0.70	266.07	811.30	3.70	0.53	-4.55	0.75	4.58	276.63
834.09	0.81	278.54	834.06	3.93	0.54	-4.85	0.87	4.88	276.40
860.33	0.79	281.24	860.30	4.24	0.61	-5.21	0.17	5.25	276.64
882.96	0.86	273.69	882.93	4.50	0.65	-5.53	0.56	5.57	276.68
910.00	0.90	278.90	909.97	4.83	0.69	-5.95	0.33	5.99	276.66
936.22	0.92	287.05	936.18	5.19	0.79	-6.35	0.50	6.40	277.07

Survey Report

Well Name: JAMES A DAMIANA
Survey: JAMES A DAMIANA #2
Survey Date: 8/19/2014

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Closure Distance ft	Closure Direction deg
958.91	0.96	287.81	958.87	5.53	0.90	-6.71	0.19	6.77	277.64
984.38	1.09	293.75	984.33	5.95	1.06	-7.13	0.64	7.21	278.47
1011.47	1.18	302.81	1011.42	6.47	1.32	-7.60	0.74	7.71	279.83
1034.58	1.18	313.47	1034.53	6.94	1.61	-7.97	0.95	8.13	281.41
1061.59	1.34	319.32	1061.53	7.53	2.04	-8.38	0.76	8.62	283.68
1085.50	1.36	321.58	1085.43	8.09	2.47	-8.74	0.23	9.08	285.81
1111.77	1.47	329.53	1111.70	8.72	3.01	-9.10	0.86	9.59	288.29
1134.89	1.46	334.14	1134.81	9.28	3.53	-9.38	0.51	10.02	290.62
1157.30	1.53	337.11	1157.21	9.82	4.06	-9.62	0.47	10.44	292.89
1184.87	1.62	340.71	1184.77	10.50	4.77	-9.89	0.49	10.98	295.74
1211.33	1.66	343.85	1211.22	11.16	5.49	-10.12	0.37	11.52	298.48
1233.32	1.63	346.47	1233.20	11.69	6.10	-10.29	0.37	11.96	300.68
1260.43	1.61	0.73	1260.30	12.27	6.86	-10.37	1.49	12.44	303.48
1286.90	1.66	0.11	1286.76	12.78	7.62	-10.37	0.18	12.86	306.30
1309.48	1.59	5.01	1309.33	13.19	8.25	-10.34	0.69	13.23	308.60
1336.58	1.59	5.99	1336.42	13.65	9.00	-10.27	0.10	13.65	311.24
1358.11	1.64	3.14	1357.94	14.02	9.61	-10.22	0.43	14.02	313.23
1385.28	1.61	7.25	1385.10	14.49	10.37	-10.15	0.44	14.51	315.62
1411.62	1.62	8.19	1411.43	14.92	11.11	-10.05	0.12	14.98	317.86
1434.35	1.72	359.02	1434.15	15.34	11.77	-10.01	1.25	15.45	319.61
1461.53	1.60	20.38	1461.32	15.77	12.53	-9.88	2.31	15.96	321.73
1483.53	1.63	8.38	1483.31	16.06	13.13	-9.73	1.54	16.34	323.45
1509.86	1.70	2.76	1509.63	16.52	13.89	-9.66	0.68	16.92	325.18
1536.19	1.66	20.06	1535.95	16.92	14.64	-9.51	1.93	17.45	326.99
1558.17	1.69	7.58	1557.92	17.23	15.26	-9.36	1.66	17.90	328.48
1584.75	1.68	4.16	1584.48	17.70	16.03	-9.28	0.38	18.52	329.95
1611.76	1.76	21.02	1611.48	18.10	16.82	-9.10	1.89	19.12	331.58
1634.45	1.71	13.77	1634.16	18.40	17.47	-8.89	0.99	19.60	333.02
1660.83	1.68	13.07	1660.53	18.78	18.23	-8.71	0.12	20.20	334.45
1683.49	1.73	18.65	1683.19	19.09	18.88	-8.53	0.76	20.71	335.69
1709.89	1.67	23.80	1709.58	19.38	19.61	-8.25	0.61	21.27	337.19
1736.87	1.61	25.78	1736.54	19.61	20.31	-7.92	0.33	21.80	338.69
1759.53	1.59	31.03	1759.19	19.77	20.86	-7.62	0.65	22.21	339.93
1785.94	1.57	35.42	1785.59	19.89	21.47	-7.22	0.46	22.65	341.41
1808.59	1.51	39.22	1808.23	19.95	21.96	-6.85	0.54	23.00	342.66
1834.94	1.38	43.72	1834.57	19.97	22.45	-6.42	0.64	23.35	344.05

Survey Report

Well Name:		JAMES A DAMIANA							
Survey:		JAMES A DAMIANA #2							
Survey Date:		8/19/2014							
MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Closure Distance ft	Closure Direction deg
1861.89	1.34	52.43	1861.52	19.91	22.88	-5.94	0.78	23.64	345.44
1884.51	1.21	52.65	1884.13	19.83	23.19	-5.54	0.56	23.84	346.56
1910.74	1.14	54.73	1910.36	19.73	23.51	-5.11	0.33	24.06	347.74
1933.49	0.95	56.80	1933.10	19.63	23.74	-4.76	0.83	24.21	348.65
1960.57	0.88	62.33	1960.17	19.51	23.96	-4.39	0.42	24.36	349.62
1986.54	0.81	67.78	1986.15	19.36	24.12	-4.04	0.42	24.46	350.49
2009.37	0.68	69.28	2008.97	19.24	24.23	-3.77	0.59	24.52	351.16
2036.18	0.46	75.47	2035.78	19.11	24.32	-3.52	0.85	24.57	351.77
2057.71	0.58	78.23	2057.31	19.00	24.36	-3.33	0.56	24.59	352.22
2084.36	0.32	89.08	2083.96	18.87	24.39	-3.12	1.02	24.59	352.71
2110.14	0.31	77.36	2109.74	18.78	24.40	-2.98	0.25	24.59	353.03
2136.72	0.15	101.11	2136.32	18.71	24.41	-2.88	0.69	24.58	353.28
2158.96	0.22	146.31	2158.56	18.64	24.37	-2.83	0.69	24.54	353.39
2184.72	0.21	119.01	2184.32	18.55	24.31	-2.76	0.39	24.47	353.53
2211.32	0.25	111.07	2210.92	18.45	24.27	-2.66	0.19	24.41	353.74
2232.80	0.16	191.47	2232.40	18.39	24.22	-2.63	1.27	24.36	353.81
2259.40	0.30	188.81	2259.00	18.33	24.11	-2.64	0.49	24.26	353.74
2285.86	0.37	169.60	2285.46	18.22	23.96	-2.64	0.52	24.11	353.71
2311.48	0.27	186.09	2311.08	18.12	23.82	-2.63	0.55	23.97	353.70
2333.89	0.24	193.46	2333.49	18.07	23.72	-2.65	0.19	23.87	353.63
2360.45	0.25	184.08	2360.05	18.00	23.61	-2.66	0.15	23.76	353.56
2386.19	0.24	217.40	2385.78	17.96	23.51	-2.70	0.54	23.67	353.45
2408.37	0.29	226.73	2407.97	17.96	23.44	-2.77	0.30	23.60	353.26
2434.92	0.21	221.65	2434.51	17.97	23.36	-2.85	0.30	23.53	353.04
2460.66	0.22	237.51	2460.26	17.98	23.29	-2.92	0.23	23.48	352.84
2482.95	0.32	262.18	2482.54	18.03	23.26	-3.02	0.69	23.46	352.60
2509.36	0.35	281.95	2508.95	18.15	23.27	-3.18	0.45	23.48	352.23
2535.22	0.44	292.89	2534.81	18.31	23.32	-3.35	0.44	23.56	351.84
2561.63	0.32	238.67	2561.23	18.42	23.32	-3.50	1.37	23.59	351.46
2583.21	0.34	243.04	2582.80	18.46	23.26	-3.61	0.13	23.54	351.18
2609.64	0.27	255.43	2609.23	18.52	23.21	-3.74	0.35	23.51	350.85
2636.18	0.27	256.68	2635.77	18.59	23.18	-3.86	0.03	23.50	350.54
2661.67	0.20	260.27	2661.27	18.65	23.16	-3.96	0.27	23.50	350.29
2684.06	0.24	255.71	2683.65	18.70	23.14	-4.05	0.20	23.49	350.09
2710.59	0.22	256.08	2710.19	18.76	23.12	-4.15	0.07	23.49	349.83
2736.28	0.25	228.42	2735.87	18.79	23.07	-4.24	0.46	23.45	349.59

Survey Report

Well Name:		JAMES A DAMIANA							
Survey:		JAMES A DAMIANA #2							
Survey Date:		8/19/2014							
MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Closure Distance ft	Closure Direction deg
2758.54	0.29	225.75	2758.13	18.80	23.00	-4.32	0.18	23.40	349.37
2784.21	0.27	231.16	2783.81	18.81	22.91	-4.41	0.13	23.33	349.11
2810.73	0.26	256.67	2810.32	18.85	22.86	-4.52	0.44	23.30	348.82
2832.82	0.23	230.48	2832.42	18.89	22.82	-4.60	0.52	23.28	348.60
2861.78	0.27	230.26	2861.37	18.90	22.74	-4.70	0.12	23.22	348.33
2883.49	0.19	224.88	2883.08	18.91	22.68	-4.76	0.37	23.18	348.15
2908.81	0.28	235.21	2908.40	18.93	22.62	-4.84	0.39	23.13	347.92
2934.69	0.28	248.49	2934.28	18.97	22.56	-4.95	0.25	23.10	347.62
2960.76	0.28	244.05	2960.35	19.02	22.51	-5.07	0.08	23.07	347.31
2986.68	0.27	246.80	2986.28	19.06	22.46	-5.18	0.06	23.05	347.01
3009.00	0.27	243.48	3008.59	19.10	22.41	-5.27	0.07	23.02	346.76
3035.97	0.28	246.85	3035.57	19.15	22.36	-5.39	0.07	23.00	346.44
3057.99	0.30	237.62	3057.58	19.19	22.31	-5.49	0.22	22.97	346.17
3085.19	0.31	240.62	3084.78	19.23	22.23	-5.61	0.07	22.93	345.83
3107.93	0.28	245.12	3107.52	19.27	22.18	-5.72	0.16	22.90	345.55
3134.29	0.28	233.60	3133.88	19.31	22.11	-5.83	0.21	22.87	345.24
3161.50	0.32	233.27	3161.09	19.33	22.03	-5.94	0.12	22.82	344.91
3183.51	0.30	244.30	3183.10	19.36	21.97	-6.04	0.28	22.78	344.62
3210.72	0.33	251.59	3210.30	19.43	21.91	-6.18	0.17	22.77	344.25
3236.09	0.31	244.28	3235.68	19.49	21.86	-6.31	0.18	22.75	343.90
3258.08	0.29	257.97	3257.67	19.54	21.82	-6.42	0.33	22.75	343.61
3285.52	0.32	249.03	3285.10	19.61	21.78	-6.56	0.21	22.75	343.25
3311.87	0.35	250.06	3311.46	19.68	21.73	-6.70	0.11	22.74	342.86
3334.59	0.34	258.39	3334.17	19.75	21.69	-6.83	0.22	22.74	342.52
3361.04	0.44	254.50	3360.63	19.85	21.65	-7.01	0.37	22.75	342.07
3383.76	0.40	257.32	3383.35	19.94	21.61	-7.17	0.20	22.76	341.65
3410.96	0.39	263.50	3410.55	20.06	21.58	-7.35	0.16	22.79	341.19
3436.58	0.49	258.53	3436.16	20.18	21.54	-7.54	0.39	22.83	340.70
3459.28	0.49	263.50	3458.86	20.30	21.51	-7.74	0.19	22.86	340.22
3485.75	0.38	255.32	3485.33	20.42	21.48	-7.93	0.49	22.90	339.73
3508.46	0.41	255.57	3508.04	20.50	21.44	-8.08	0.17	22.91	339.34
3534.93	0.52	262.81	3534.51	20.63	21.40	-8.29	0.46	22.95	338.81
3562.00	0.47	249.41	3561.58	20.76	21.35	-8.52	0.47	22.98	338.24
3584.58	0.49	248.67	3584.16	20.84	21.28	-8.70	0.10	22.99	337.77
3611.16	0.54	252.76	3610.74	20.95	21.20	-8.92	0.23	23.00	337.18
3633.65	0.53	255.87	3633.23	21.06	21.14	-9.12	0.14	23.03	336.66

Survey Report

Well Name:		JAMES A DAMIANA							
Survey:		JAMES A DAMIANA #2							
Survey Date:		8/19/2014							
MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Closure Distance ft	Closure Direction deg
3660.92	0.59	251.34	3660.49	21.20	21.07	-9.38	0.28	23.06	336.00
3686.79	0.55	261.71	3686.36	21.34	21.01	-9.63	0.43	23.11	335.38
3709.10	0.54	249.35	3708.68	21.46	20.95	-9.83	0.53	23.15	334.86
3735.82	0.47	253.16	3735.39	21.57	20.88	-10.06	0.27	23.17	334.28
3761.82	0.52	251.67	3761.39	21.68	20.81	-10.27	0.19	23.21	333.73
3784.14	0.35	241.38	3783.71	21.75	20.75	-10.43	0.82	23.22	333.32
3810.02	0.24	247.76	3809.59	21.80	20.69	-10.55	0.46	23.22	332.99
3836.74	0.12	181.44	3836.31	21.80	20.64	-10.60	0.82	23.20	332.82
3859.05	0.14	166.29	3858.62	21.76	20.59	-10.59	0.18	23.15	332.78
3884.92	0.12	152.40	3884.49	21.71	20.53	-10.57	0.15	23.09	332.76
3911.52	0.17	157.19	3911.09	21.65	20.47	-10.54	0.20	23.03	332.75
3933.13	0.11	133.95	3932.70	21.60	20.43	-10.52	0.37	22.98	332.76
3959.71	0.24	115.75	3959.28	21.52	20.39	-10.45	0.53	22.91	332.86
3986.54	0.42	90.94	3986.11	21.40	20.36	-10.30	0.83	22.82	333.17
4008.27	0.44	82.38	4007.84	21.28	20.37	-10.14	0.32	22.76	333.54
4034.14	0.46	97.83	4033.71	21.13	20.37	-9.94	0.48	22.66	334.00
4060.14	0.45	105.61	4059.71	20.96	20.33	-9.73	0.24	22.54	334.41
4086.73	0.28	129.68	4086.30	20.80	20.26	-9.58	0.84	22.41	334.68
4109.06	0.24	180.94	4108.62	20.71	20.18	-9.54	1.03	22.32	334.69
4135.08	0.38	226.19	4134.64	20.68	20.06	-9.60	1.04	22.24	334.42
4161.68	0.59	238.67	4161.25	20.73	19.93	-9.79	0.88	22.20	333.85
4184.12	0.78	245.05	4183.68	20.81	19.81	-10.02	0.90	22.20	333.16
4209.99	1.01	241.29	4209.55	20.95	19.62	-10.38	0.91	22.20	332.12
4236.71	1.05	240.44	4236.26	21.10	19.39	-10.80	0.19	22.19	330.88
4258.92	1.04	236.54	4258.47	21.21	19.18	-11.15	0.33	22.18	329.83
4285.04	1.02	234.12	4284.59	21.31	18.91	-11.53	0.19	22.15	328.63
4311.65	0.87	233.91	4311.19	21.40	18.65	-11.89	0.53	22.12	327.49
4333.27	0.89	230.75	4332.81	21.45	18.45	-12.15	0.23	22.09	326.63
4360.01	0.85	226.65	4359.55	21.49	18.18	-12.45	0.27	22.04	325.59
4386.61	0.93	232.80	4386.14	21.54	17.92	-12.77	0.48	22.00	324.52
4408.35	0.94	231.30	4407.88	21.60	17.70	-13.05	0.11	21.99	323.60
4434.95	1.12	237.32	4434.48	21.70	17.42	-13.44	0.81	22.00	322.36
4461.39	1.14	240.42	4460.91	21.84	17.15	-13.88	0.24	22.07	321.01
4486.00	1.12	237.87	4485.51	21.98	16.90	-14.30	0.22	22.14	319.77
4508.85	1.18	250.38	4508.36	22.15	16.71	-14.71	1.13	22.26	318.64
4535.82	1.25	254.89	4535.33	22.43	16.54	-15.26	0.44	22.50	317.30



Well Name: JAMES A DAMIANA
Survey: JAMES A DAMIANA #2
Survey Date: 8/19/2014

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Closure Distance ft	Closure Direction deg
4560.42	1.34	264.74	4559.92	22.77	16.44	-15.80	0.96	22.80	316.13
4585.92	1.33	260.64	4585.42	23.14	16.37	-16.39	0.38	23.16	314.96
4611.48	1.10	255.05	4610.97	23.46	16.25	-16.92	0.99	23.46	313.85
4635.87	1.06	260.57	4635.36	23.72	16.16	-17.37	0.46	23.72	312.93
4638.64	1.20	264.57	4638.12	23.76	16.15	-17.42	5.78	23.76	312.83